Using Express Setup on a Catalyst 2950 Series Switch for Initial Installation

Document ID: 45383

Contents

Introduction

This document explains how to use the new Express Setup feature on the Catalyst 2950 series switches to configure a new switch or a switch that has had its configuration file erased.

Express Setup is available in Cisco IOS® Software Releases 12.1(14)EA1 and later. This feature allows you to set basic configuration parameters such as IP address, default gateway, host name, and the system, enable mode (configuration), and Telnet passwords.

If you are already know how to configure your Catalyst 2950 series switch with the basic configuration parameters described above using the Command Line Interface (CLI) over a console (terminal) session on your PC, you do not need to read this document unless you would prefer to use Express Setup to configure these parameters.

Note: This document applies to all of the Catalyst 2950 series switches except the Catalyst 2950 Long Reach Ethernet (LRE) and the Catalyst 2955.

Prerequisites

If you do not want manage the switch with TCP/IP based applications such as Cisco Cluster Management Suite (CMS) or Telnet, you do not need to configure any settings on it. The default configuration in the switch has all ports enabled with auto sensing for the speed and duplex settings. The ports are all in VLAN 1. This allows devices connected to any of the ports to communicate with each other.

You can manage the switch using a console connection from the serial port on a PC. The correct serial cable is supplied with the switch.

Please note that Cisco recommends using TCP/IP to manage your switch. This document explains how to configure your switch using Express Setup to be managed via TCP/IP.

Before using Express Setup to configure a switch, refer to the Catalyst 2950 Desktop Switch Hardware Installation Guide, May 2003, which discusses some of the following topics.

- Removing the switch and AC power cord from the shipping container
- Getting an Ethernet (Category 5) straight−through cable to connect the switch to your PC or workstation
- Powering on the switch

Requirements

This procedure requires that your PC has an IP address of 10.0.0.2 with a mask of 255.255.255.0 in order to configure the switch. If your PC does not use Dynamic Host Configuration Protocol (DHCP), you have the option of manually configuring this address or temporarily changing your PC to use DHCP so that it can receive the 10.0.0.2 address from the temporary DHCP server that runs on the switch during Express Setup. Refer to Appendix A: Setting up the IP Address on your PC to use Express Setup for more information.

Your Catalyst 2950 switch must be running Cisco IOS® Software Release 12.1(14)EA1 or later to use Express Setup.

Your switch must not have a configuration file. If you want to use Express Setup to reconfigure a switch that was previously deployed and already has a configuration in its file system see the Clearing the Switch IP Address and Configuration section of this document for instructions on deleting the existing configuration.

Cisco IOS software for the Catalyst 2950 can be downloaded from the Cisco Catalyst 2950 Software Center (registered customers only) .

If you need help upgrading your switch, refer to the following documentation.

- Upgrading Software Images on Catalyst 2950 and 2955 Series Switches Using the Command Line Interface
- Working with the Cisco IOS File System, Configuration Files, and Software Images Working with the Flash File System

If you have a problem upgrading your switch, refer to Recovering Catalyst 2950, 2955, and 3550 Series Switches from a Corrupted or Missing Image.

Components Used

The information in this document is based on the Catalyst 2950 Switch running Cisco IOS Software Release 12.1(14)EA1.

The information presented in this document was created from devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If you are working in a live network, ensure that you understand the potential impact of any command before using it.

Conventions

For more information on document conventions, see the Cisco Technical Tips Conventions.

Starting Express Setup

This task explains how to use the browser based Express Setup utility introduced in Cisco IOS Software Release 12.1(14)EA1 to set up and configure the switch. You assign the IP information (IP address, subnet mask, and default gateway) for the Management VLAN (VLAN 1 by default) so that the switch can be managed by a PC using TCP/IP.

Caution: Do not start Express Setup when there are any devices connected to the switch or connect a switch that is already in Express Setup mode to any device other than the PC or workstation that is being used to configure it. The switch acts as a DHCP server during the Express Setup procedure, and only the PC or workstation connected to the switch after Express Startup is started should receive a DHCP address from the switch.

Note: The illustrations in this section show the Catalyst 2940 switch but the Mode button, LEDs, and switch ports are similar on the non−LRE Catalyst 2950 switch.

Before starting Express Setup, verify that the switch has passed the power−on self−test (POST). The SYST and STAT LEDs should be on and green if the switch has successfully passed POST. For information about troubleshooting a POST failure, refer to the Catalyst 2950 Desktop Switch Hardware Installation Guide, May 2003. You cannot start Express Setup until POST has completed.

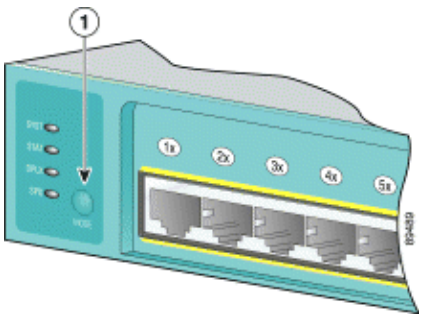
Follow these steps to start the Express Setup program.

1. Verify that no devices are connected to the switch.
2. Press and hold the **Mode** button, as shown in Figure 1, until the four LEDs next to the Mode button turn green.

   This takes approximately 2 seconds.

   Note: This only works on switches that do not have a configuration file in their file system.

   Figure 1

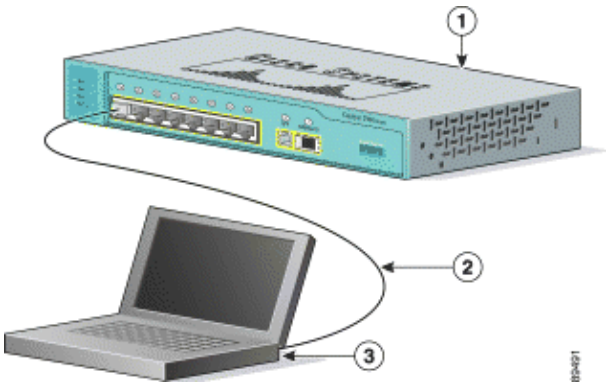
   - **1** − Mode Button
3. When the four LEDs turn green, release the Mode button.

Note: If all of the Mode LEDs begin to blink after you have held the Mode button for 2 seconds or you cannot get the four LEDs to remain lit, a configuration already exists on the switch. In this case the switch cannot enter Express Setup mode. See the section of this document Clearing the Switch IP Address and Configuration for the instructions on deleting a configuration file from a switch.

4. Connect the Ethernet cable (not included) to a 10/100 Ethernet port on the front panel of the switch, as shown in Figure 2.

Caution: Do not connect the switch to any device other than the PC being used to configure it.

Figure 2



- **1** − Switch
- **2** − Ethernet cable
- **3** − PC or workstation

5. Connect the other end of the cable to the Ethernet port on the PC and verify that the port status LEDs on both connected Ethernet ports are green.
6. Wait approximately 30 seconds after the port LEDs turn green, and launch a web browser on your PC.
7. If you are using DHCP on your PC, you need to obtain the 10.0.0.2 IP address from the switch now.

Do one of the two following options depending on the operating system on your PC.

If you have manually configured your PC to use 10.0.0.2, skip this step and proceed to step 8.

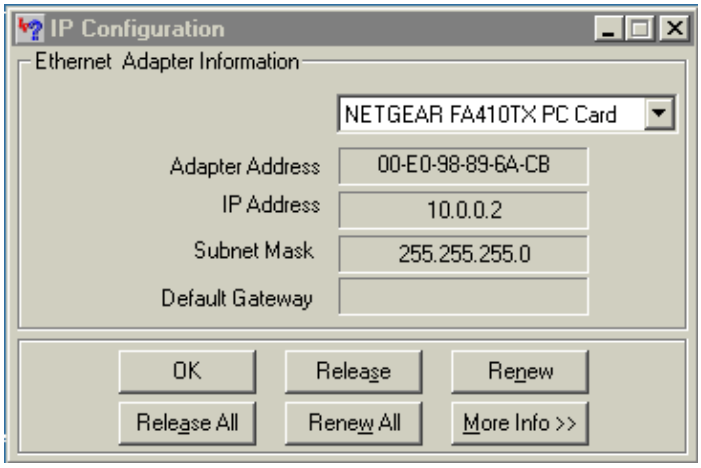
Windows 95/98/ME:

a. Select **Start** > **Run** and enter **winipcfg**.

The WINIPCFG application opens as shown in Figure 3.

Note: You must select the NIC that you have connected to the switch in the WINIPCFG window before continuing this task.

Figure 3



If the IP address is already 10.0.0.2, proceed to step 8.

b. Click **Release All**.
c. Click **Renew All**.

When the IP address has changed to 10.0.0.2, proceed to step 8.

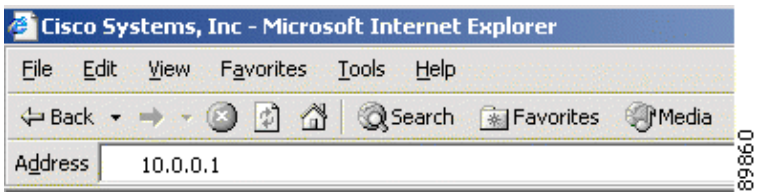
Windows 2000/XP

a. Select **Start** > **Run** and enter **CMD** to open a command prompt window.
b. Enter the command **ipconfig /release** at the prompt.
c. Enter the command **ipconfig /renew** at the prompt.
d. Enter the command **ipconfig /all** at the prompt to display the current settings.

When the IP address has changed to 10.0.0.2, proceed to step 8.

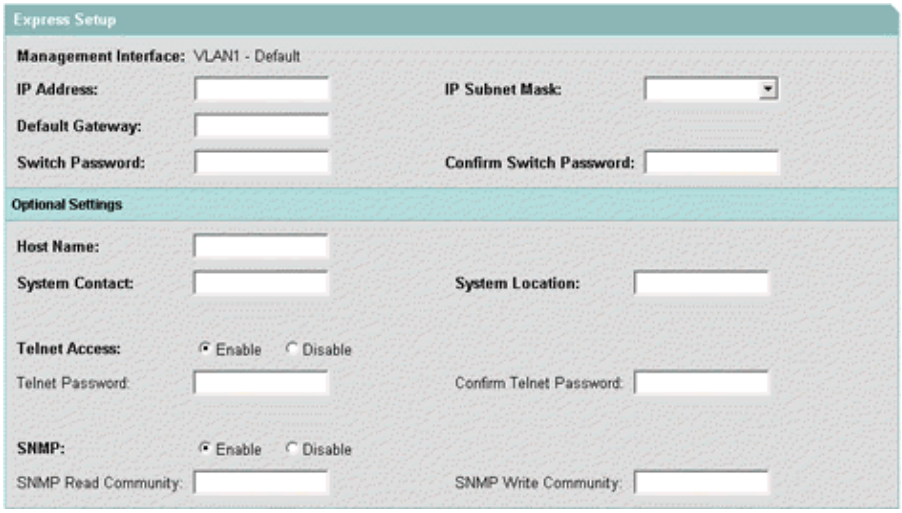
8. Enter the IP address 10.0.0.1, as shown in Figure 4 in the browser, and press **Enter**.

Figure 4



If the Express Setup home page appears, as shown in Figure 5, proceed to the next task Entering the Express Setup Configuration Parameters.

Figure 5



Consider the following issues if the Express Setup home page does not appear in your browser.

- Are you running Cisco IOS Software Release 12.1(14)EA1 or later on the switch?

  If not, upgrade it now.
- Did you release and renew the IP address on your PC using DHCP or manually configure its address to 10.0.02?

  If not do so now. See Appendix A: Setting up the IP address on your PC to use Express Setup for help.
- Did you wait 30 seconds after connecting the switch and PC or workstation before entering the IP address in your browser?

  If not, wait 30 seconds and re−enter **10.0.0.1** in the browser, and press **Enter**.
- Did you enter the wrong address in your web browser, or is there an error message displayed in the browser window?

  Re−enter **10.0.0.1** in the browser, and press **Enter**.
- Did you connect a crossover instead of a straight−through Ethernet cable between an Ethernet port of the switch and the Ethernet port of the PC, as shown Figure 3?

  If not, reconnect the cable to the Ethernet port on the switch and PC. Wait 30 seconds before entering **10.0.0.1** in the browser.
- Did you verify that POST successfully ran before starting Express Setup?

  If not, make sure that only the SYST and STAT LEDs are green before pressing the **Mode** button to begin Express Setup.
- Did all of the Mode LEDs begin to blink after you have held the Mode button for 2 seconds?

  If they did, a configuration already exists on the switch and the switch cannot go into Express Setup mode. Release the button. For more information, see the section titled Clearing the Switch IP Address and Configuration.

Entering the Express Setup Configuration Parameters

This task explains the required and optional parameters in the Express Setup home page as shown in Figure 5.

Caution: Do not select the Save option at the bottom of the configuration page until you have filled out all of the parameters that you want to include in the startup configuration.

Note: The parameters that you enter on this page are not validated until you select the Save option. The error messages that appear when you attempt to save a configuration that has errors are shown below in the section that applies to each parameter.

Required Parameters

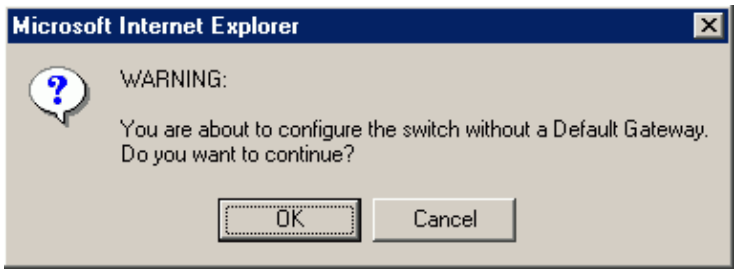
The following parameters are required to allow a PC using TCP/IP to manage the switch.

1. Enter the IP address of the switch in the IP Address field.
2. Click the drop−down arrow in the IP Subnet Mask field, and select an IP Subnet Mask.
3. Enter the IP address for the default gateway in the Default Gateway field.

   A gateway (router or dedicated network device) is a system that allows IP connectivity between devices on different IP subnets. If your PC and your switch have IP addresses from different subnets, you must enter the correct default gateway for the switch in its configuration.

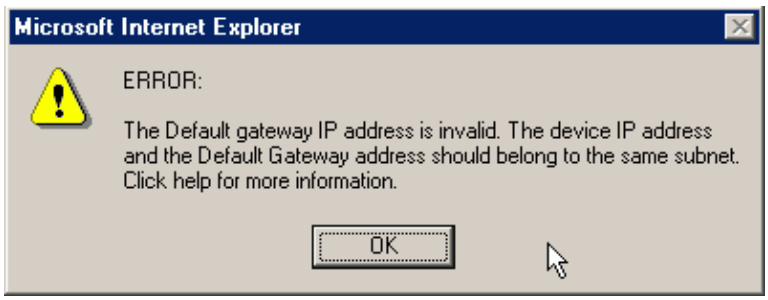
   If you do not enter a default gateway, the following warning message appears (Figure 6) when you try to save the configuration.

   Figure 6



   If you enter a gateway address that is on a different subnet than the switch, the following warning message appears (Figure 7) when you try to save the configuration.

   Figure 7



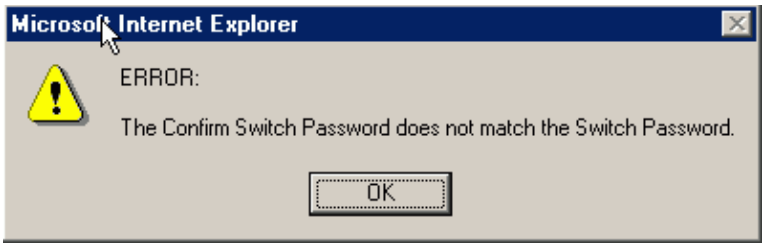
4. Enter the password in the Switch Password field.

   The password can be from 1 to 25 alphanumeric characters, can start with a number, is case sensitive, allows embedded spaces, but does not allow embedded spaces at the beginning or end.

   Cisco recommends that you set a switch password. Blank passwords are a security risk.

If you do not type the same password in both fields, the following error message appears (Figure 8) when you try to save the configuration.

Figure 8



5. Enter the password again in the Confirm Switch Password field.

Optional Parameters

The following parameters are optional if you want to use Cluster Management Suite to manage the switch.

Note: If you would like to be able to Telnet to the switch for configuration and or management tasks, you must enter a value in the Telnet Password field.

1. Enter a host name for the switch in the Host Name field.

   The host name is limited to 31 characters and embedded spaces are not allowed.
2. Enter the name of your system contact in the System Contact field.

   This identifies the system administrator for the switch or network.
3. Enter your system location in the System Location field.

   This identifies the physical location of the switch.
4. Click **Enable** in the Telnet Access field if you are going to use Telnet.

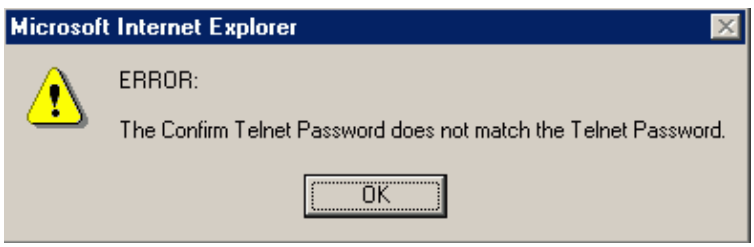
   If you enable Telnet access, you must enter a Telnet password.

   a. Enter a password in the Telnet Password field.

      The Telnet password can be from 1 to 25 alphanumeric characters, is case sensitive, allows embedded spaces, but does not allow embedded spaces at the beginning or end.
   b. Enter the Telnet password again in the Confirm Telnet Password field.

      If you do not type the same password in both fields, following error message appears (Figure 9) when you try to save the configuration.

      Figure 9



5. Click **Enable** to configure Simple Network Management Protocol (SNMP).

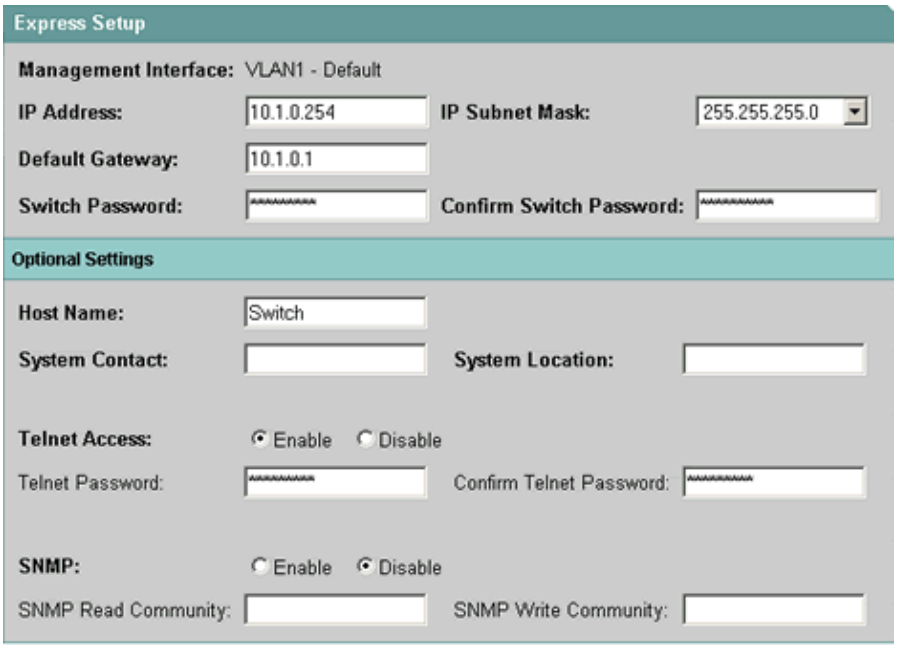
Enable SNMP only if you plan to manage switches by using Cisco Works or another SNMP−based network−management system.

Note: If you do not have an SNMP management application in your network, you do not have to configure the SNMP parameters.

If you enable SNMP, you must enter a community string in either the SNMP Read Community field, the SNMP Write Community field, or both. SNMP community strings authenticate access to MIB objects. Embedded spaces are not allowed in SNMP community strings. If you set the SNMP read community, users can access MIB objects, but cannot modify them. If you set the SNMP write community, users can access and modify MIB objects.

Your completed configuration will resemble Figure 10.

Figure 10



Saving the New Configuration

Use the following procedure to save the new configuration.

1. Click **Save** to save your settings to the switch, or click **Cancel** to clear your settings.

   If you decide to save the configuration, the following warning message appears (Figure 11). This is a normal message. It does not indicate that your configuration has an error.

   In this document, the switch's IP address was changed to 10.1.0.254 as shown in Figure 10 and Figure 11.

   Figure 11

2. Click **OK** to save the configuration.

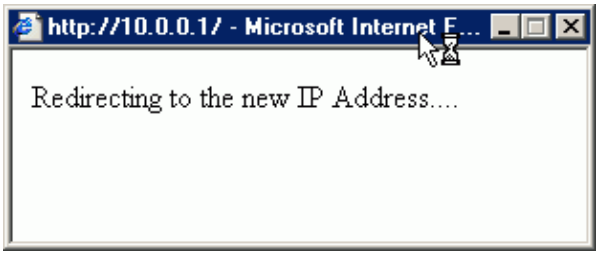
   After you save your settings, the switch exits Express Setup mode.

   Your switch is now configured with the new IP address.

   You will see two additional information popups.

   A popup (Figure 12) appears letting you know that your browser's current page is being redirected to the new IP address on the switch. This popup automatically closes.

   Figure 12



   In most cases, this redirect fails and your browser shows an error indicating that the page cannot be found. The reason that this fails is that your PC still has its address as 10.0.0.2 255.25.255.0 at this point. The only way that this redirect works is if you configured the switch with the IP address 10.0.0.1 255.255.255.0 (the same address that was used on the switch during Express Setup) or an IP address between 10.0.0.3 255.255.255.0 and 10.0.0.254 255.255.255.0.

   You will also see the Help popup as shown in Figure 13.

   Figure 13 (Part 1)

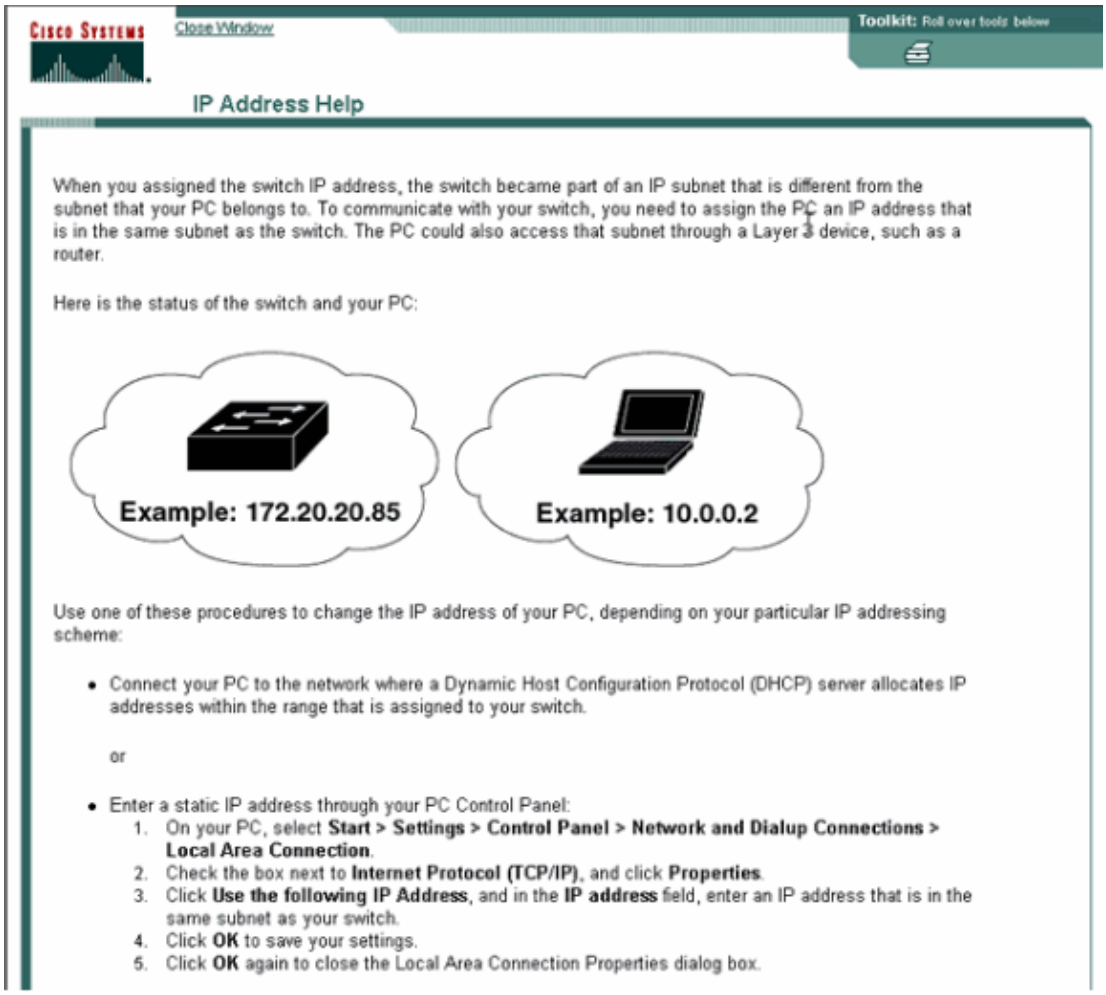
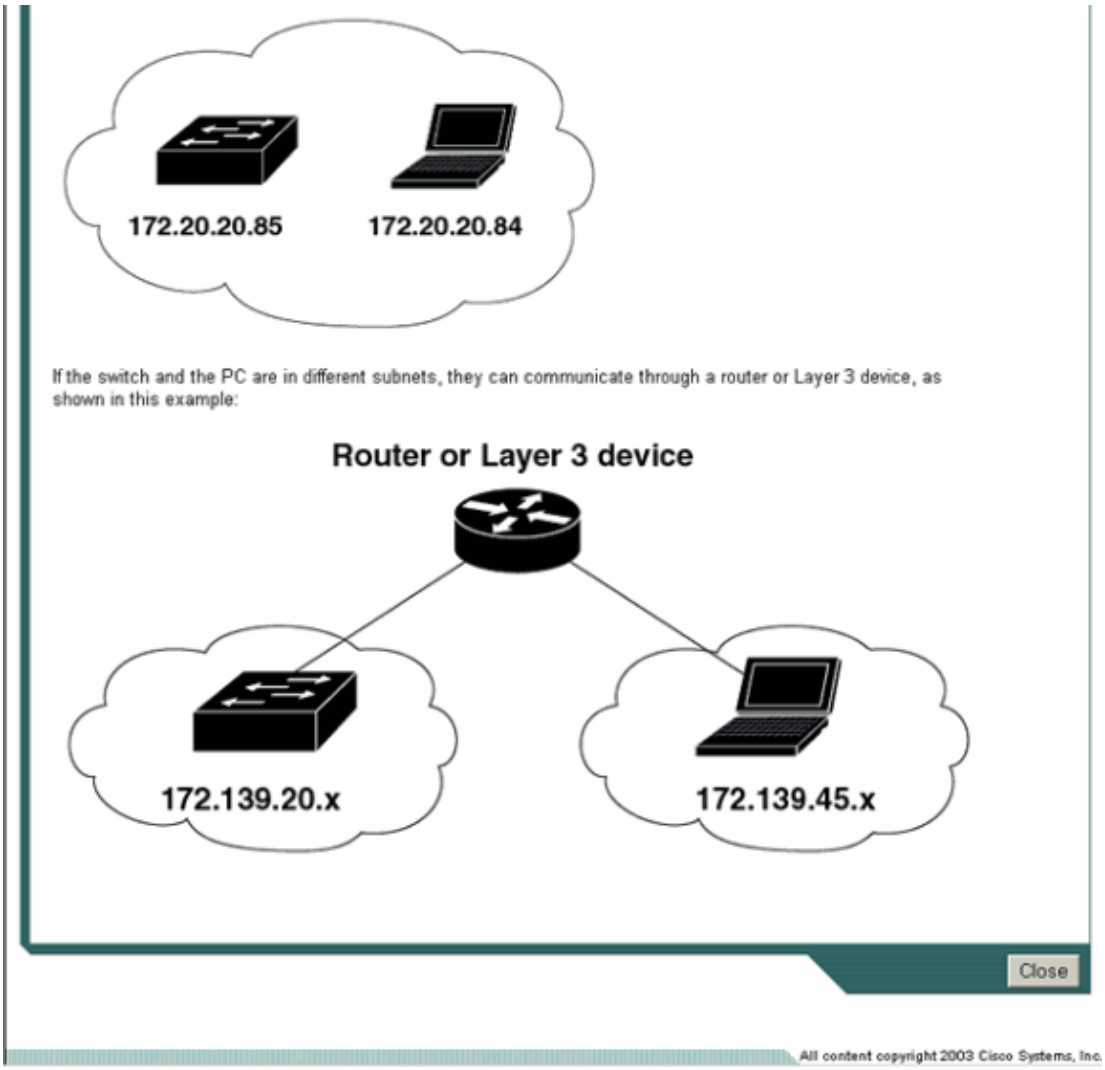


Figure 13 (Part 2)



3. Reconnect your PC's Ethernet cable to the device it was connected to before you started the Express Setup procedure.

   Wait for the link LEDs to indicate that the link is active and then proceed to the next task.

Reset the PC's IP Address using DHCP

This step explains how to reset your PC's IP address if it is using DHCP.

If you are using a static (manually) entered IP address, do not perform this step. You need to restore the original IP address for the PC using the procedure provided in Appendix A: Setting up the IP Address on your PC to use Express Setup.

If you are using DHCP on your PC, you need to obtain an IP address from the DHCP server on the network again.

Do one of the two following options depending on the operating system on your PC.

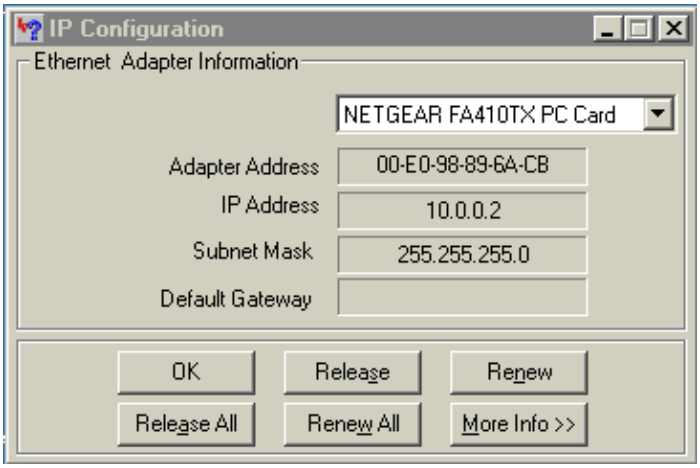
Windows 95/98/ME

a. Select **Start** > **Run** and enter **winipcfg**.

The WINIPCFG application opens as shown in Figure 14.

Caution: You must select the NIC that you have connected to the switch in the WINIPCFG window before continuing this task.

Figure 14



b. Click **Release All**.
c. Click **Renew All**.

When the PC's IP address has changed to an IP address for the subnet that the PC is attached to, you have completed this task. Proceed to the next task Verifying the Switch's IP Address.

Windows 2000/XP

a. Select **Start** > **Run** and enter **CMD** to open a command prompt window.
b. Enter the command **ipconfig /release** at the prompt.
c. Enter the command **ipconfig /renew** at the prompt.
d. Enter the command **ipconfig /all** at the prompt.

This displays the current settings.

When the PC's IP address has changed to an IP address for the subnet that the PC is attached to, you have completed this task. Proceed to the next task Verifying the Switch's IP Address.

Verifying the Switch's IP Address

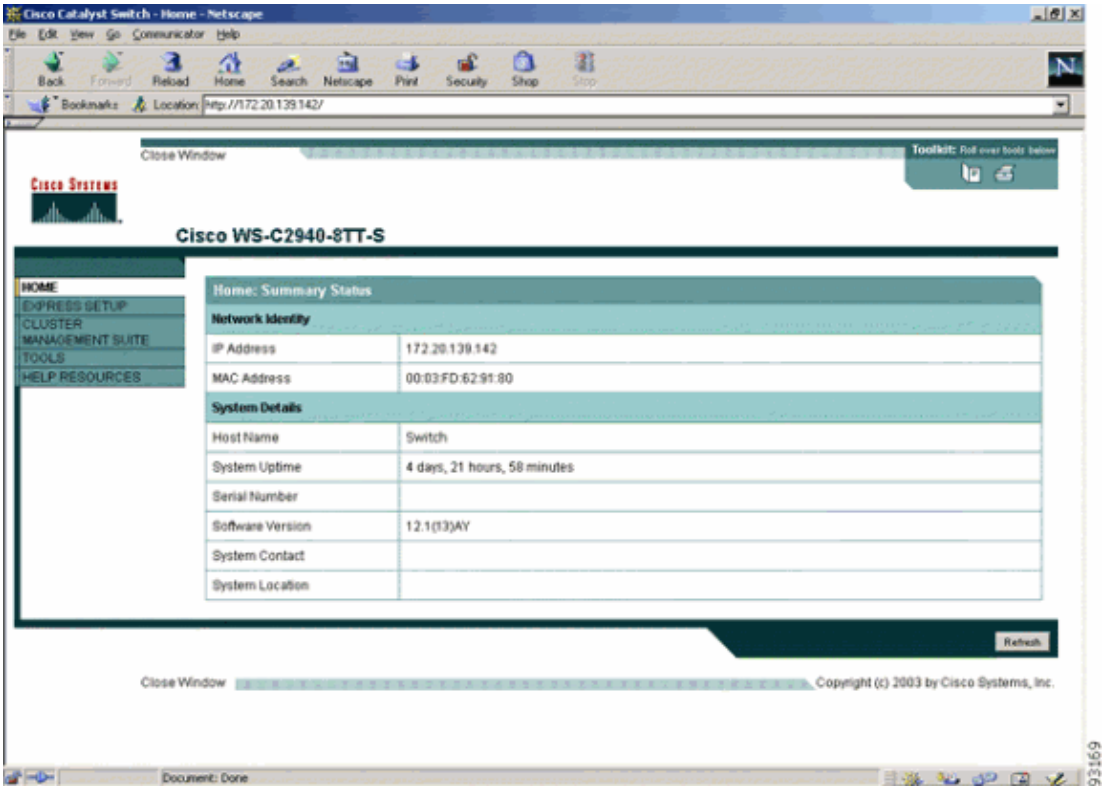
After you have installed the switch in your network, follow these steps to verify the IP address configured on your switch by loading the main configuration home page.

1. Launch a web browser on your PC.

   Note: You must have reconnected your PC to its original location and restored its IP address before continuing this task.
2. Enter the IP address of your switch in the browser's Location field and press **Enter**.

   The switch home page should appear, as shown in Figure 15.

   Figure 15



If the switch's home page doesn't appear, refer to the Troubleshooting section below.

Troubleshooting

The Express Setup process that you already went through verified that the switch has the correct configuration home page files on it. It also verified that the switch is running the web server to allow a PC to access the files from a browser. If the browser on your PC is unable to load the switch's configuration home page after you moved the switch to its final location, the most likely problems are:

- A faulty cable
- An IP addressing misconfiguration
- The switch is not cabled to the correct segment
- The PC was not restored to its original IP address
- The switch's configuration file was not saved

Faulty Cable

Verify that the LED on the port that the switch uses to connect to the subnet its default gateway is on green. If it is not, try using a different cable.

If the port is connected to another switch or a hub, you need to use an Ethernet crossover patch cable, not a standard straight patch cable.

IP Addressing Misconfiguration

The most common reason that you cannot connect to the switch's configuration home page is that there is a router (gateway) between your PC and the switch and either the switch or your PC has an incorrect default gateway configured.

1. Test access from your PC to other devices that are not on its local subnet.

For instance, if the PC can download email, browse the Internet, or browse a corporate web site on the internal network, then it's configuration is probably correct.

2. Find a PC on the same IP subnet as the switch. Try to load the switch's configuration home page from this PC.

   If this works, then it is possible that you entered the incorrect default gateway IP address on the switch. You can verify this by finding the default gateway on the PC that you used in this test. Use either the **winipcfg** command (Win95/98/ME) or the **ipconfig /all** command (Win2000/XP) to display the IP gateway address on the PC.

   If the default gateway on the PC is different than the one you entered on the switch, you can change the switch's default gateway using the **ip default−gateway ip_address** command over either the console port or a Telnet session.

   ```
   Switch > enable
   Switch#configure terminal
   Switch(config)#ip default−gateway ip_address
   Switch(config)#exit
   Switch#copy running−config startup−config
   ```

   Where **ip_address** is the correct IP address of the gateway for the switch.

   If you are unable to start either a console session or a Telnet session with the switch, you will have to repeat the Express Setup procedure after clearing the switch's configuration. See the section Clearing the Switch IP Address and Configuration.

Switch is not Cabled to the Correct Segment

Verify that the switch is connected to the network that uses the IP subnet that you assigned to the switch.

PC was not Restored to its Original IP Address

Verify that you returned your PC to its original IP configuration.

If your PC was using DHCP before you started configuring the switch, refer to the section Reset the PC's IP Address using DHCP.

If your PC was using a static address, refer to Appendix A: Setting up the IP Address on your PC to use Express Setup − Static IP Addresses.

The Switch's Configuration File was not Saved

It is possible that the switch did not save its configuration properly after you clicked **Save** on the configuration screen. Proceed to the section Clearing the Switch IP Address and Configuration.

Clearing the Switch IP Address and Configuration

If you have configured a new switch with a wrong IP address, or all the switch LEDs start blinking when you are trying to enter Express Setup mode, you can clear the IP address that is configured on the switch.

Caution: This procedure clears the IP address and all configuration information stored on the switch. Do not follow this procedure unless you want to completely reconfigure the switch.

To clear the IP address and the switch configuration information, follow these steps.

1. Press and hold the **Mode** button, as shown in Figure 2.

   The switch LEDs begin blinking after about 2 seconds.
2. Continue holding down the **Mode** button.

   The LEDs stop blinking after 8 additional seconds and then the switch reboots.
3. Return to Starting Express Setup.

Appendix A: Setting up the IP Address on your PC to use Express Setup

If your PC is using a statically assigned IP address, you can either convert it to use DHCP temporarily so that it can obtain the 10.0.0.2 IP address from the switch during Express Setup, or you can configure it to use 10.0.0.2 manually.

- Changing your PC to use DHCP
- Changing the Static IP Address to 10.0.0.2 Manually
- Changing the Static IP Address to the Original Values

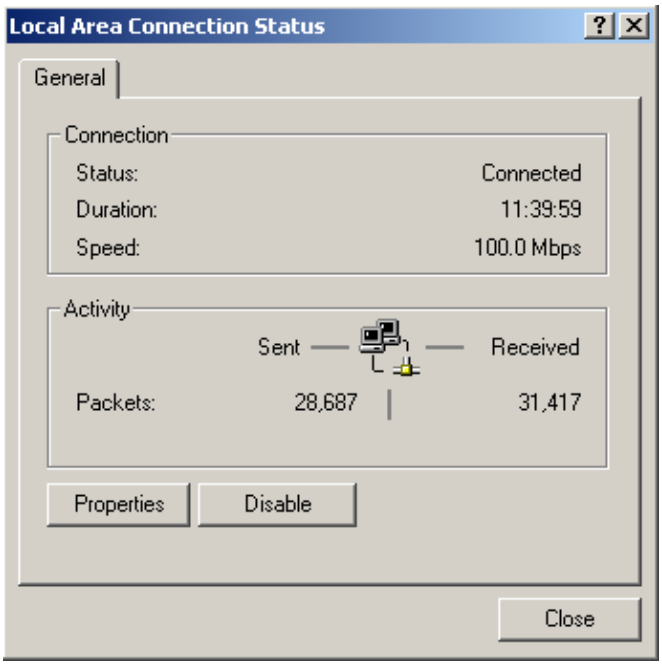
Changing your PC to use DHCP

Use the following procedure to change your PC to use DHCP.

1. Select **Start** > **Settings** > **Control Panel**.
2. Double−click on **Network and Dial−up Connections**.
3. Double−click on the icon that represents your LAN connection.

   This is typically **Local Area Connection.** The following window (Figure 16) appears.

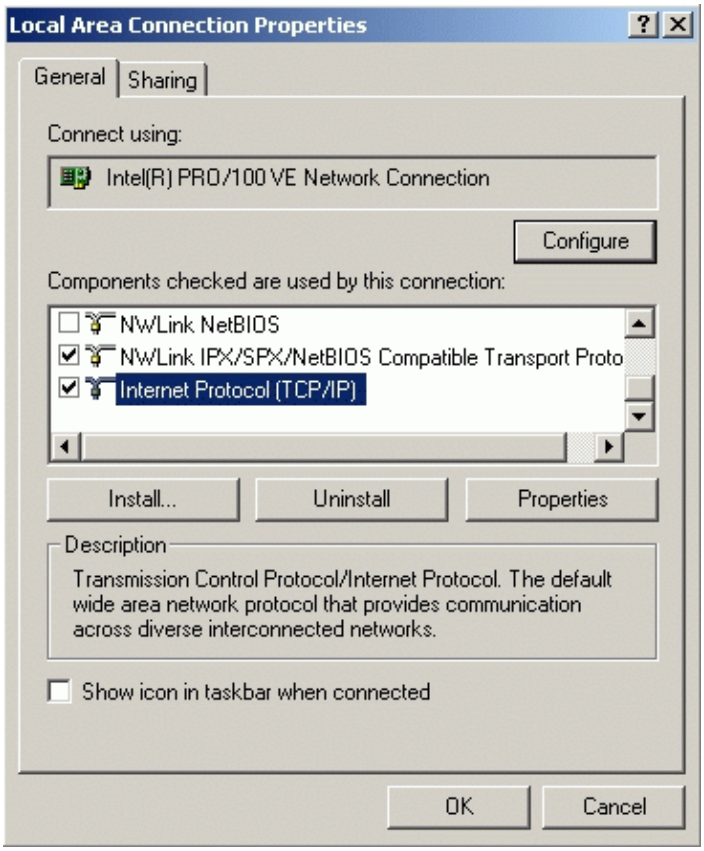
   Figure 16



4. Click **Properties**.

The following window (Figure 17) appears.

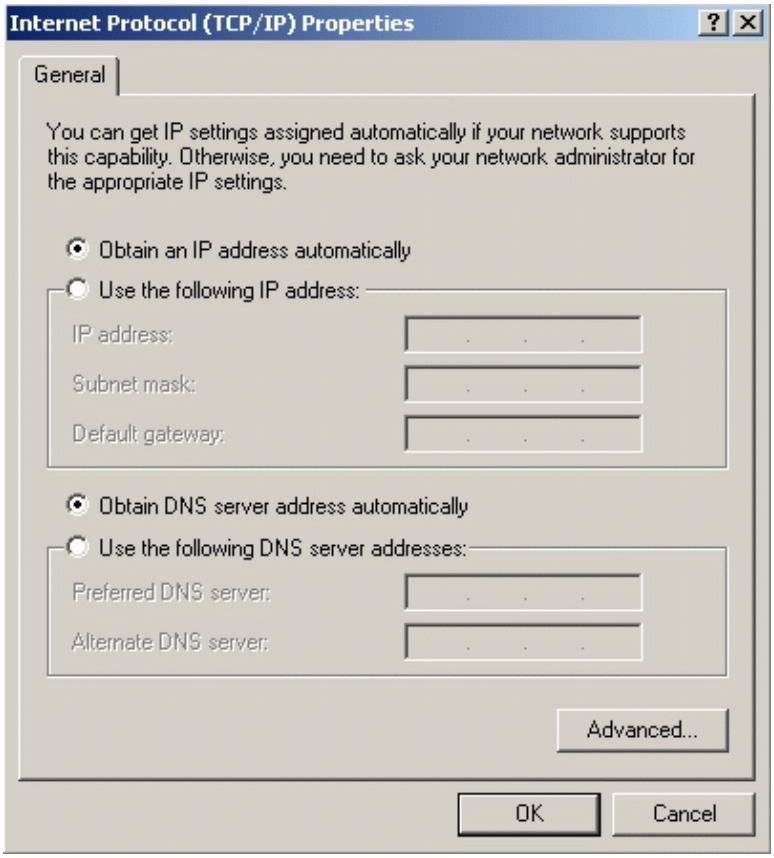
Figure 17



5. Scroll down and select **Internet Protocol (TCP/IP)** and then click **Properties**.

The following window (Figure 18) appears.

Figure 18



6. Change both settings to the automatic options as shown in Figure 18.
7. Click **OK** to close the current window.
8. Click **OK** to close the current window.
9. Click **Close** to close the current window.

Your PC is now ready to use DHCP.

Note: If you are using Win95/98/ME, you will be prompted to reboot your PC.

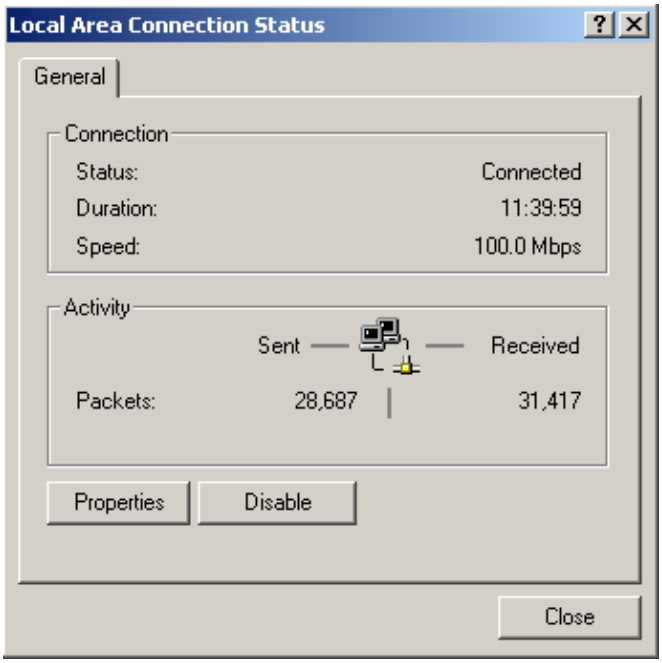
Changing the Static IP Address to 10.0.0.2 Manually

Use the following procedure to change the static IP address to 10.0.0.2 manually.

1. Select **Start** > **Settings** > **Control Panel**.
2. Double−click on **Network and Dial−up Connections**.
3. Double−click on the icon that represents your LAN connection.

This is typically **Local Area Connection**. The following window (Figure 19) appears.

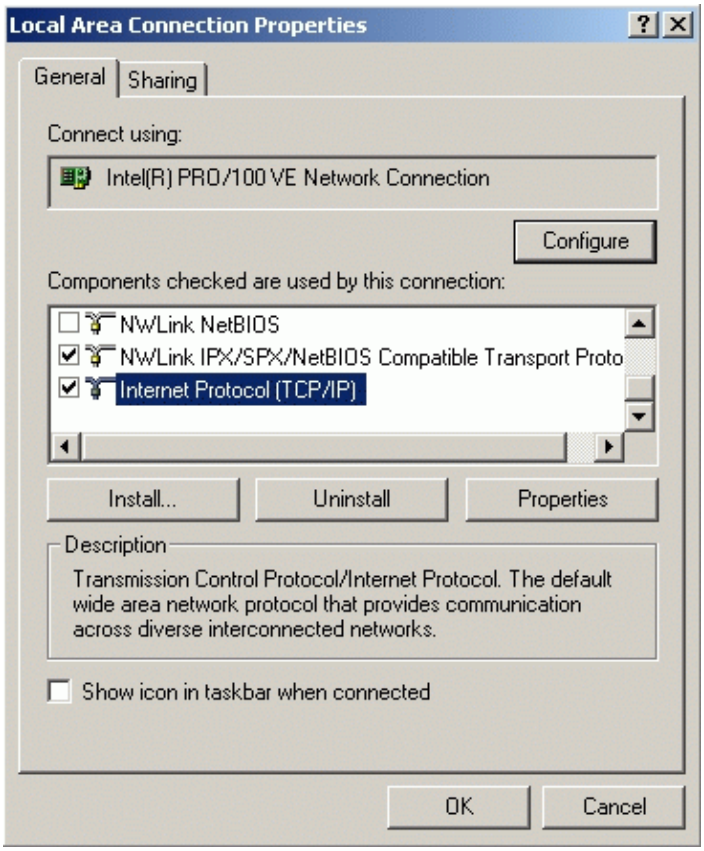
Figure 19



4. Click **Properties**.

   The following window (Figure 20) appears.

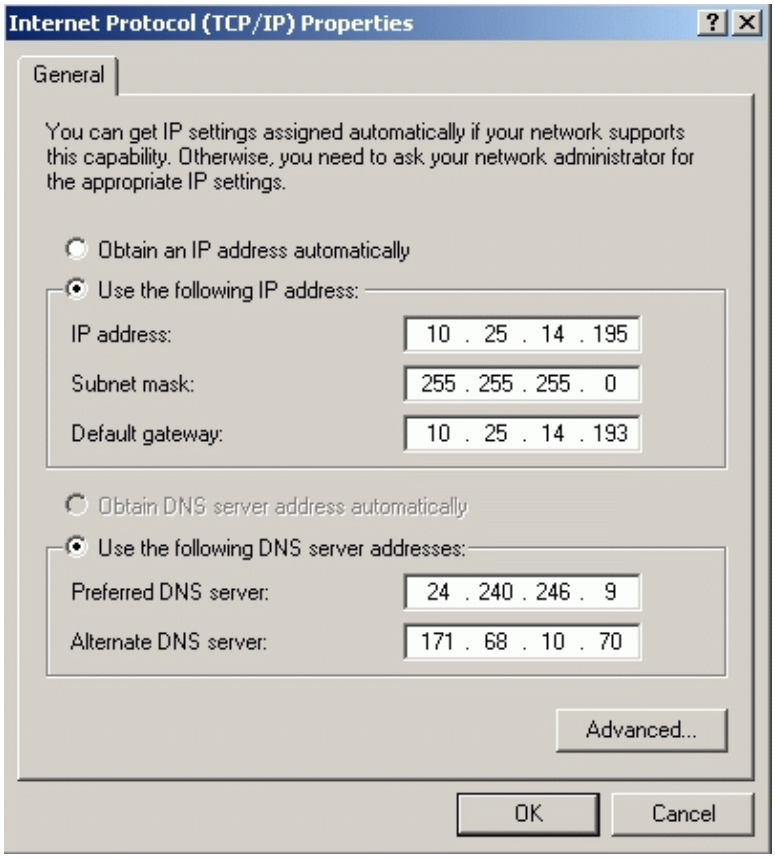
   Figure 20



5. Scroll down and select **Internet Protocol (TCP/IP)** and then click **Properties**.

   The following window (Figure 21) appears.

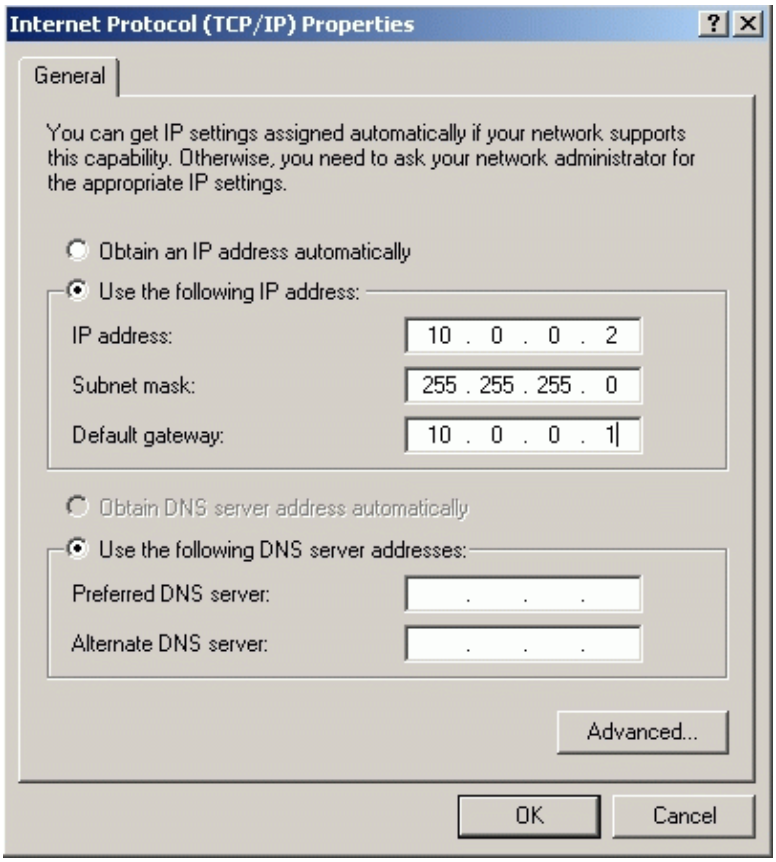
   Figure 21



Note: Make a note of the current settings so that you can repeat this task later to restore them after you have configured the switch.

6. Change the IP address parameters so that they match the values shown in Figure 22.

Figure 22



7. Click **OK** to close the current window.
8. Click **OK** to close the current window.
9. Click **Close** to close the current window.

Your PC is now ready to use 10.0.0.2.

Note: If you are using Win95/98/ME, you will be prompted to reboot your PC.

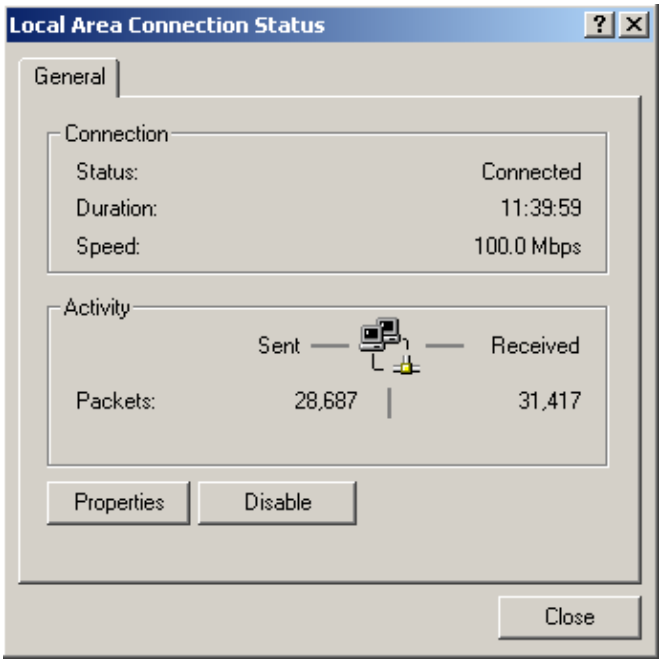
Changing the Static IP Address to the Original Values

Use the following procedure to change the static IP address to the original values.

1. Select **Start** > **Settings** > **Control Panel** .
2. Double−click on **Network and Dial−up Connections**.
3. Double−click on the icon that represents your LAN connection.

This is typically **Local Area Connection**. The following window (Figure 23) appears.

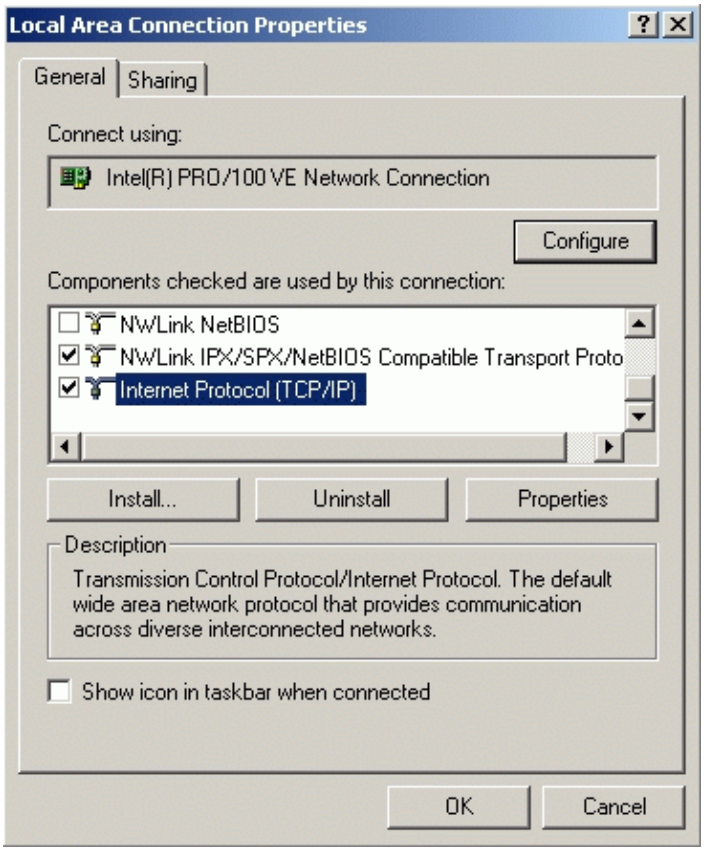
Figure 23



4. Click **Properties**.

   The following window (Figure 24) appears.

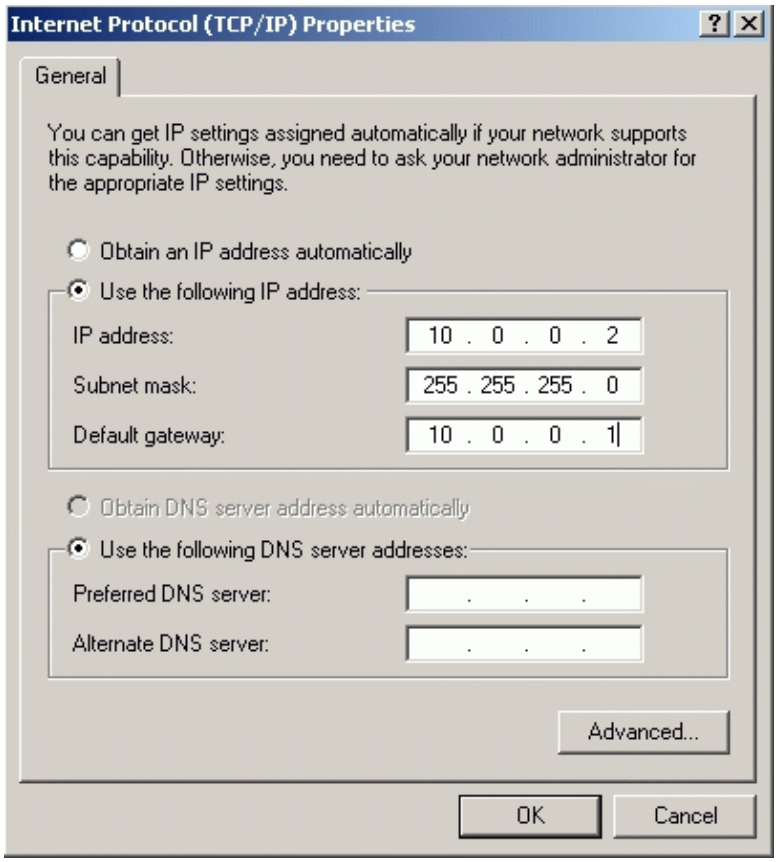
   Figure 24



5. Scroll down and select **Internet Protocol (TCP/IP)** and then click **Properties**.

   The following window (Figure 25) appears.

   Figure 25

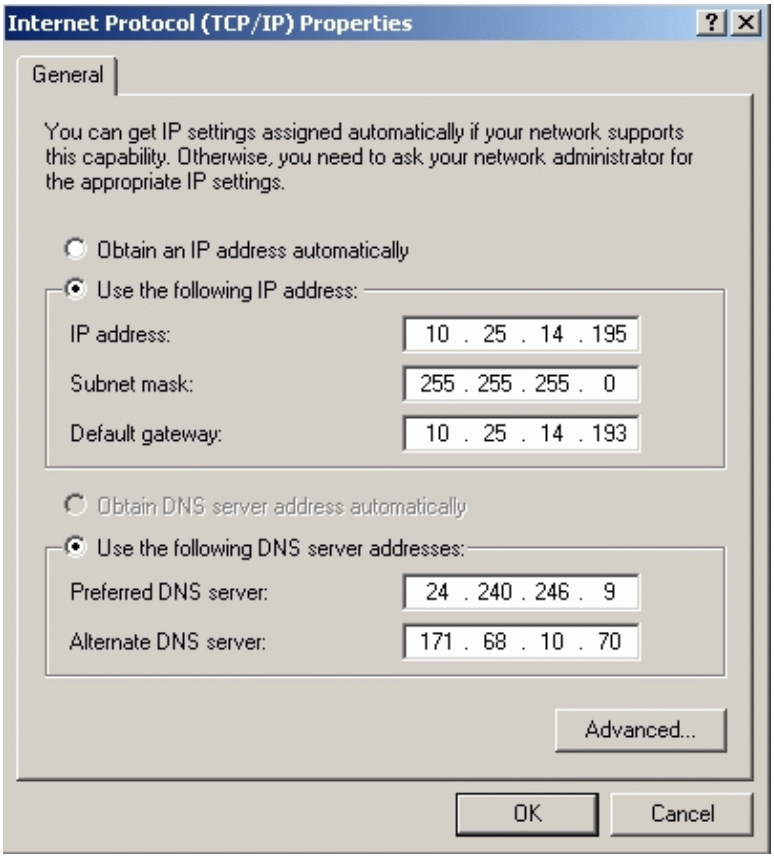


Caution: Make a note of the current settings so that you can repeat this task later to restore them after you have configured the switch.

6. Change the IP address parameters so that they match the values that you noted down before you changed them.

Caution: Do not use the values shown in Figure 26. They are shown here because they were the original values on the PC that was used to create this document. You must re−enter the original values from your PC.

Figure 26



7. Click **OK** to close the current window.
8. Click **OK** to close the current window
9. Click **Close** to close the current window.

Your PC is now ready to use 10.0.0.2.

Note: If you are using Win95/98/ME, you will be prompted to reboot your PC.

Appendix B: Where To Go Next

After you have successfully deployed your switch, refer to the following documentation for additional configuration options.

- Getting Started with Cluster Management Suite (CMS)
- Catalyst 2950 and Catalyst 2955 Switch Software Configuration Guide, 12.1(14)EA1

Related Information

- **LAN Switching Technology Support**
- **Catalyst LAN and ATM Switches Product Support**
- **Technical Support − Cisco Systems**

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